

ABSTRACT OF THE DISCLOSURE

Embodiments consistent with the principles of the present invention provide improved results, compared to IEEE Std. 754, for floating point operations used in interval arithmetic calculations. One embodiment consistent with the principles of the present invention provides a method of enhancing support of an interval computation when performing a floating point arithmetic operation, comprising the steps, performed by a processor, of receiving a first floating point operand, receiving a second floating point operand, executing the floating point arithmetic operation on the first floating point operand and the second floating point operand, determining whether a NaN substitution is necessary, producing a floating point result if the NaN substitution is determined to be unnecessary, and substituting an alternative value as the floating point result if the NaN substitution is determined to be necessary.